CLAIMS

We Claim:

1. An air induction system for inducting air into an engine of an automobile, the system comprising:

a duct in fluid communication with the engine of the automobile for directing inducted intake air into the engine; and

a compliant member connected to the duct, wherein the duct is made of a first material and the compliant member is made of a second material that flexes as a result of an internal pressure fluctuation during air induction into the engine.

2. The air induction system of claim 1 wherein the compliant member further comprises an aperture disposed along a length of the duct covered with the second material.

3. The air induction system of claim 2 wherein the second material is a thermoplastic elastomer.

4. The air induction system of claim 3 wherein the thermoplastic elastomer is an olefin/polypropylene blend.

5. The air induction system of claim 1 wherein a compliant member is located at a portion of an air inlet tube of the air induction system that allows for dissipation of one or more acoustic standing waves.

6. The air induction system of claim 1 wherein the first material is a polymer.

7. The air induction system of claim 1 wherein the compliant member has a thickness that is less than half of a thickness of the duct.

8. The air induction system of claim 1 wherein the aperture is an elongated slot.

9. The air induction system of claim 1 wherein the compliant member is disposed on a resonator of the air induction system.

10. The air induction system of claim 1 wherein the compliant member is disposed on a quarter wave tuner of the air induction system.

11. The air induction system of claim 1 wherein the compliant member is disposed on an air filter box in fluid communication with the duct of the air induction system.

12. A method for reducing noise generated in an air induction system, the method comprising:

determining a length of an air duct;

determining a location along the duct where a maximum pressure of an acoustic standing wave is present;

forming a flexible portion into a portion of the duct; and

positioning the flexible portion at the location of the maximum pressure of the acoustic standing wave.

13. The method of claim 12, further comprising forming the duct out of a first material.

14. The method of claim 12, further comprising forming the flexible portion out of a second material.

15. The method of claim 14, wherein forming the flexible portion out of a second material further comprises over-molding the second material over the duct.

16. The method of claim 12, wherein forming a flexible portion further comprises forming an aperture in the portion of the duct.

17. The method of claim 16, wherein forming a flexible portion further comprises covering the aperture with a thin layer of a polymer material.

18. The method of claim 16, wherein forming a flexible portion further comprises covering the aperture with a thin layer of an olefin/polypropylene blend.

19. The method of claim 12, wherein forming further comprises fixing the thin layer of polymer material to the duct over the aperture.